REMARKS

Claims 1-4 are pending in the current application, each of which has been rejected. No claim amendments have been submitted herein.

Approval and entry of this amendment are respectfully requested.

Rejections Under 35 U.S.C. §102:

Claims 1 and 2 have been rejected under 35 U.S.C. §102(e) as being anticipated by **Yamazaki et al.** (U.S. Patent No. 6,032,753). Applicants respectfully traverse this rejection for the reasons stated hereinbelow.

Independent claim 1 of the claimed invention has positively recited:

> "a temperature detector for detecting the temperature of a catalyst or a value relating to the same, wherein the value relating to the same includes the temperatures of vehicle cooling water;
> a first comparison circuit for comparing the detected result from the temperature detector with a preset reference value; and
> a control circuit for allowing the generator to generate electric power and to store the power in the power storage unit when the internal combustion engine is driven, and when the detected result by the temperature detector is equal to or below the reference value according to the output from the comparison circuit."

Therefore, it is clear that the comparison is based on a detected temperature of the catalyst. This claim language is supported by way of an example in Fig. 2, steps S11, S13 and accompanied description on page 11, line15 to page 12, line 13 of the written specification.

In rejecting this claim language, the Office action has stated in relevant part that Yamazaki discloses:

> "a temperature detector, (82) in Figure 4, for detecting the temperature of a catalyst (43a);
>
> a first comparison circuit for comparing the detected result from the temperature detector with a preset reference value (steps S308 and S310 in Figure 15); and
>
> a control circuit for allowing the generator to generate electric power and to store the power in the power storage unit when the internal combustion engine is driven, and when the detected result by the temperature detector is equal to or below the reference value according to the output from the comparison circuit.
>
> According to Figure 15, when the temperature of the catalyst is below a catalyst activated temperature (YES answer at step S310), the internal combustion engine is driven; and the generator is allowed to generate electric power which is stored in the power storage unit (steps S312 and S314; lines 15-34 of column 13)."

Therefore, this Office Action is taking a firm position that **Yamazaki** in Figure 15 and accompanied written specification in column 13 discloses a temperature detector 82 for detecting the temperature of a catalyst 43a. A comparison is made between the detected temperature and a preset reference value. A generator 14 would then charge a power storage unit 19 when the engine is running and when the detected temperature is equal to or below the preset reference value.

However, Figure 15 and associated written description simply does not support the position taken in the final Office Action. Regarding relevant portions of Figure 15, the written specification states in relevant part that:

> "When it is determined that the engine 10 is in operation at step S302, the program proceeds to step S304 to read data of the engine speed NE, the intake air

pressure PM, and the intake air temperature THA. At subsequent step S306, in the same manner as the processing of step S130 in the flowchart of FIG. 6, the estimated temperature of catalyst Tpcat is calculated from the data input at step S304.

The program then proceeds to step S308, at which a temperature difference .DELTA.Temp is calculated by subtracting a catalyst activating temperature Tk from the estimated temperature of catalyst Tpcat. The catalyst activating temperature Tk represents a temperature required for activating the catalyst 43a (for example, 350.degree. C.). When the temperature difference .DELTA.Temp has a negative value at step S310, that is, when the estimated temperature of catalyst Tpcat is lower than the catalyst activating temperature Tk and the warm-up control of the catalyst 43a is required, the program proceeds to step S312. At step S312, a heavy-load driving time period tk, for which the power of the engine 10 is temporarily enhanced, is determined according to the temperature difference .DELTA.Temp in the graph of FIG. 16. The heavy-load driving time period tk is plotted as ordinate and the temperature difference .DELTA.Temp as abscissa in the graph of FIG. 16.

At subsequent step S314, an engine power EP is enhanced for the heavy-load driving time period tk obtained at step S312. In order to keep the engine speed NE at a substantially constant level, the electric loading of the generator 14 is raised to absorb an increase in engine torque ET due to the enhanced engine power EP. The battery 19 is charged with the energy corresponding to the increase in electric loading of the generator 14. The program then proceeds to step S316 to increment a temperature increase counter Ck and further to step S318 to compare the count on the temperature increase counter Ck with the heavy-load driving time period tk. In case that the count on the temperature increase counter Ck exceeds the heavy-load driving time period tk at step S318, the program goes to step S320 to clear the temperature increase counter Ck to "0" and exits from this routine."

Yamazaki contradicts the position taken by the Office in several major respects:

First, there is no disclosure in Figure 15 that there is a temperature detected by the temperature detector 82. Tpcat mentioned in step S306 refers to an estimated temperature of the catalyst, and Tk mentioned in step 308 refers to a catalyst activating temperature. Therefore, the Office position that a detected temperature is used for decision making in Figure 15 is totally unsubstantiated.

Second, there is no disclosure in Figure 15 of comparing a detected temperature with a preset value. As explained in steps S308 and S310, a comparison is made between a change in temperature with a preset value of zero. The change in temperature is obtained from subtracting an estimated temperature of catalyst and a catalyst activating temperature. Neither the estimated temperature of catalyst nor the catalyst activating temperature are disclosed to be based on a detected temperature. Therefore, the Office position that a detected temperature is used to compare with a preset value is totally unsubstantiated.

Third, there is no disclosure in Figure 15 of comparing whether a detected temperature is equal to or below a preset value. Both in step S310 and the accompanied written specification consistently state that the comparison is to determine whether one value is less than another value. Therefore, the Office position that an equal to or less than standard is used in a comparison is totally unsubstantiated.

Yamazaki discloses various catalyst warm-up control methods, as demonstrated in Figures 5, 6, 8, 14, 15, 20, 22, 23 and 27 of this reference. None of them appears to disclose the claimed invention. Should the Office believe any part of this reference discloses the claimed feature of "a control circuit for allowing the generator to generate electric power and to store the power in the power storage unit when the internal combustion engine is driven and when the detected result by the temperature detector is equal to or below the reference value according to the output from the comparison circuit", a citation of such disclosure is respectfully requested.

Since various positions taken by the Office are simply unsubstantiated by **Yamazaki** and various claimed features are not disclosed by **Yamazaki**, independent claim 1 patentably

distinguishes over this reference. All claims dependent thereon also patentably distinguish over this reference. Reconsideration and withdrawal of this rejection are respectfully requested.

Rejections Under 35 U.S.C. §103:

Claims 3 and 4 have been rejected under 35 U.S.C. §103(a) as being unpatentable over **Yamazaki et al.** as applied to claims 1 and 2, above, in view of **Yoshida** (U.S. Patent No. 5,785,138). Applicants respectfully traverse this rejection for the reasons stated hereinbelow.

In making this rejection, the Office has stated in relevant part that:

> "**Yamazaki et al.**, however, fail to disclose that the control circuit allows the generator to generate electric power, and drives the vehicle by the generated electric power and stores the electric power, when the detected result from the temperature detector is equal to or below the reference value according to the output from the first comparison circuit, and when the detected result from the remaining charge detector is **above** the reference value relating to the remaining charge according to the output from the second comparison circuit"

The Applicant agrees with this Office assessment of the shortcoming of **Yamazaki**. However, the Office action further stated that:

> "As shown in Figures 1 and 2, **Yoshida** teaches an operating method for a hybrid car, in which the controller (60) allows the generator (30) to generate electric power, and drives the vehicle by the electric motor (10) and stores the electric power, when the detected result from the temperature detector (43) is equal to or below a first reference value (step 57), and when the detected result from the remaining charge detector is above a second reference value relating to the remaining charge (step 53) (also see line 18 of column 11 to line 20 of column 12). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the method taught by **Yoshida** in the apparatus of **Yamazaki et al.**, since the use thereof would have provided an effective control apparatus to reduce harmful emissions from a hybrid vehicle."

The Applicants respectfully disagree.

There is a fundamental difference in approach between **Yamazaki** and **Yoshida** when it is determined that the temperature of a catalyst is below a certain required level. In **Yamazaki**, as explained in Figure 15 and associated written description in column 13, lines 17-22:

> "when the estimated temperature of catalyst Tpcat is lower than the catalyst activating temperature Tk and the warm-up control of the catalyst 43a is required, the program proceeds to step S312. At step S312, a heavy-load driving time period tk, for which the power of the engine 10 is temporarily enhanced...."

Therefore, in **Yamazaki**, the solution to deal with a catalyst that has a temperature that is below a required level is to enhance engine performance, thus producing hotter exhaust gas to bring the catalyst temperature to reach the required level.

In **Yoshida**, as explained in Figure 2 and associated written description in column 11, line 49 to column 12, line 4:

> "the processor reads the catalyst temperature signal from the catalyst temperature sensor 43, and determines, in accordance with the read signal, whether or not the catalyst temperature is lower than a predetermined necessary temperature for satisfactory activation of the catalyst (Step S7). If the result of the decision in this step is YES, exhaust gas containing pollutant or noxious gases may possibly be discharged from the internal combustion engine 40 when the engine is operated. Therefore, the processor delivers the engine control signal, which instructs stopping the internal combustion engine, to the engine drive system (Step S8), thereby maintaining the stopped state of the engine 40 or stopping the engine operation when the engine is operating. Thus, anything causing the catalyst temperature to lower may cause the internal combustion engine operation to stop. In Step S9, the processor delivers a control signal to the current control device 50 instructing that a current be supplied to the catalyst heater of the exhaust gas purifier 42. In response to this control signal, the current control device 50 operates so that a heating current is supplied from the battery 20 to the heater. Accordingly, the heater is energized to heat the catalyst."

Therefore, in **Yoshida**, when the temperature of the catalyst is below a certain required level, a catalyst heater is turned on to increase the temperature of the catalyst to the required level. The

explanation stated in the Office Action regarding **Yoshida** is simply unsubstantiated. Namely, that "**Yoshida** teaches an operating method for a hybrid car, in which the controller (60) allows the generator (30) to generate electric power, and drives the vehicle by the electric motor (10) and stores the electric power, when the detected result from the temperature detector (43) is equal to or below a first reference value (step 57)".

Once the true teaching of **Yoshida** is clarified, a person of ordinary skill in the art would definitely not combined **Yamazaki** and **Yoshida** in the way as suggested by the Office.

Therefore, claims 3-4 patentably distinguish over **Yamazaki** in view of **Yoshida**.

Response to Applicants' Arguments:

Regarding the sufficiency of patentable distinctions being recited in the claims, the answer is clearly yes in view of the above response to the final rejections. Therefore, the claims, as is, patentably distinguish over **Yamazaki** and **Yoshida**, singly or in combination.

CONCLUSION

In view of the accompanying remarks, all pending claims are believed to be in condition for allowance. There being no other objections or rejections, allowance of the present invention is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper, may be charged to Deposit Account No. 01-2340.

Respectfully submitted,

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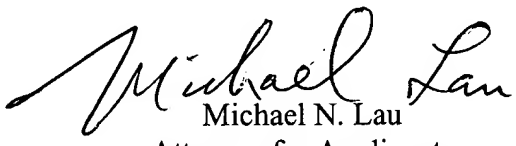

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Enclosure: Pending Claims